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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MARSHALL & MELHORN FOUR SEAGATE, EIGHT FLOOR TOLEDO, OH 43604			EXAMINER RUSSELL, CHRISTINA MARIE	
			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/823,959

Applicant(s)

LO, AMANDA

Examiner

Christina Russell

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 14 and 17 is/are rejected.
- 7) ☒ Claim(s) 10-13, 15 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:
2. In Figure 3, reference number 321 is shown but not mentioned in the specification.
3. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
4. The drawings are objected to because:
5. Minor informalities. In Figures 4-6, some references are labeled and some are not, and some parts are labeled twice, please be consistent. For example, in Figure 5,

the middle layer has two labels for reference number 221 and in Figure 6 reference numbers 90 and 91 are applied on the left side but not the right.

6. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

7. The disclosure is objected to because of the following informalities:
8. The last paragraph on page 6, describes Figure 2, but there is mention or reference to Figure 2.

Appropriate correction is required.

9. The claims are objected to because the lines are crowded too closely together, making reading difficult. Substitute claims with lines one and one-half or double spaced on good quality paper are required. See 37 CFR 1.52(b). Or at least an extra space or indent between the end of one claim and the start of the next.

***Claim Rejections - 35 USC § 112***

10. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
11. Claim 14 recites the limitation "said opposite ends" in the middle of the claim, after "...formed with a rod engaging hole,". There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by the US patent application publication to Asahi (US 2003/0056634).

14. Asahi teaches of a modular electronic musical keyboard comprising a plurality of modules in separate module casings including a set of switches and finger keys (see Figs 1-3 and 11, page 8, paragraph [0063], page 9, paragraph [0086] and page 11, paragraphs [0109]-[0116]). Also including a signal bus, which connects the modules and signals electrically (see Fig 10, and page 11, paragraphs [0104], [0106] and [0108]). Asahi also teaches the instrument having connecting devices to further connect the modules electrically when the modules are place side by side to form an elongated keyboard (see page 10, paragraphs [0093] – [0095]), and a signal port or I/F to connect to outside devices or networks (see Fig 10, and page 11, paragraphs [0104], [0106], and [0108]).

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asahi in view of the US patent to Breitweiser (5,557,055).

17. In terms of claim 2, Asahi teaches all the above claimed elements except for the presence of an encoder. Breitweiser teaches a keyboard comprising such an encoder (see Fig 6 and column 5, lines 29-46). It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the keyboard encoder of Breitweiser into the keyboard instrument of Asahi. Asahi mentions the possibility of including a rotary encoder into his invention (see page 10, paragraph [0095]), and Breitweiser shows a functional electronic keyboard, which comprises an encoder to process key, switches.

18. As for claim 3, Asahi teaches all the above claimed elements, including the presence of a processor to process the various switch events and to generate a musical tone or audio output (see Fig 11, page 11, paragraphs [0107] and [0109]-[0116]). Asahi does not however teach of an encoder but as stated above Breitweiser does. Therefore it would have been obvious to one ordinary skill in the art to include the encoder of Breitweiser's keyboard into the keyboard apparatus of Asahi for the reasons stated

above and the fact that the keyboard of Breitweiser also includes a similar processor coupled to the encoder (see again column 5, lines 29-46).

19. As for claim 4, Asahi teaches all the above claimed elements, including the presence of a tone generator and an amplifier coupled to the generator (see fig 10 and page 2, paragraph [0012]), but does teach of the above encoder. Once again Breitweiser teaches of such an encoder, therefore it would have been obvious to one ordinary skill in the art to combine these two inventions for the reasons stated above and further because the keyboard of Breitweiser also couples a tone generator to the processor and has an amplifier or speaker (a conventional amplifier device) further connected to the generator (see column 5, lines 29-46).

20. As for claim 5, Asahi teaches all the above claimed elements including the presence of speakers to reproduce the audio signal from the processor (see page 9, paragraphs [0081] and [0082]). Asahi does not however teach of the encoder claimed above but again Breitweiser does. Therefore it would have been obvious to one of ordinary skill in the art to incorporate together these two keyboard devices for the reasons stated above and also because Breitweiser's keyboard further includes speakers (see column 5, lines 29-46) similar to those of Asahi.

21. As for claim 6, Asahi teaches all the above claimed elements including the signal port, processor and speakers disposed within the module casing (see page 9, paragraphs [0081] and [0082] and page 11, paragraphs [0106] –[0108]). Asahi does not however teach of the encoder above but as stated before Breitweiser teaches of such an encoder and teaches such an encoder enclosed within the keyboard assembly (see



again Fig 6 and column 5, lines 29-46). Therefore, it would have been obvious to one of ordinary skill in the art to combine these two keyboard devices for the reasons stated above and also because Breitweiser incorporates the signal port, processor and speaker of his invention within the casing of the keyboard similarly to Asahi.

22. Claims 7-9, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asahi in view of the US patent to Bubar (6,875,913).

23. In terms of claim 7, Asahi teaches all the above claimed elements of claim 1, but does not teach of side contact plates that connect two modules laterally, having electrical contacts and are removable from each other. Bubar does however teach of these electrical contacts that allow the modules to be lateral to each other and also separated from each other (see Fig 4, column 4, lines 18-25 and column 7, line 22-column 8, line 20). It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate this separation of Bubar into the foldable keyboard of Asahi, for the reason that both keyboards have modules that are electrically connected to each other but the keyboard of Bubar allows the user to either add or take away modules to vary the length of the elongated keyboard.

24. As for claim 8, Asahi teaches all the above claimed elements, including the presence of movable press members located on the top wall of the modules (see page 9, paragraphs [0081] and [0087]). These press members allow for more stability. Asahi does not however teach of the ability to electrically connect and separate the modules from each other, but as stated above Bubar does. Therefore, it would have been

obvious to one of ordinary skill in the art to combine the two keyboard devices of Asahi and Bubar for the reasons stated above.

25. In terms of claim 9, Asahi teaches all the above claimed elements of claim 1, but does not teach of the correct number separation of the finger keys. On each module Asahi shows either 3 or 4 monotone or white keys and only 2 or 3 halftone or black keys. Bubar however shows the correct number of keys on each module (see Fig. 3A, 4A and 4E. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate this key separation technique of Bubar into the similar keyboard of Asahi, because including a full octave on each module provides more versatility and limits the user less to the range of scales and chords that can be generated.

26. In terms of claim 17, Asahi teaches all the above claimed elements of claim 1, including the modules being electrically connected, but does not teach the modules having electrical contacts mounted on the lateral walls of the modules for allowing the modules to be connected in that way. Similarly to claim 7, Bubar teaches such electrical contacts on the lateral walls of the modules to connect the modules side by side (see Figs 4A-C and column 7, line 22 – column 8, line 20). Therefore it would have been obvious to one of ordinary skill in the art, at the time of the invention, to provide such electrical contacts of Bubar on the similar keyboard instrument of Asahi to provide the ability to disassemble, reassemble and add or take away modules from the keyboard device depending on the needs of the user.

***Allowable Subject Matter***

27. Claims 10-13, 15 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

28. In terms of claim 10, Asahi teaches all the above claimed elements of claim 1, including the modules having a front, rear, and bottom wall or portion (see page 9, paragraph [0078]), and Bubar teaches the ability to stack the modules on top of each other, where the bottom of one module sits atop the front or top of another module (see Fig 4F), but neither Asahi, Breitweiser or Bubar teach of the presence of tie rods to connect the modules within the stack.

29. As for claim 11, Bubar again teaches of the front portion of one module supports the bottom portion of the module casing above it in the stack (see again Fig 4F), but neither Asahi, Breitweiser or Bubar teach of tie rods of claim 10 or an extra support member that can be folded away from the bottom wall of a module casing to provide the stack with extra support when the modules are connected on top of one another.

30. As for claim 12, neither Asahi, Breitweiser or Bubar teach of tie rods of claim 10, an extra support member of claim 11, or a receiving groove located on the bottom of the module casing to receive said foldable support member.

31. As for claim 13, neither of the three references teaches the tie rods of claim 10, or an extra support member of claim 11, but Asahi does teach of a pivotal plate

Art Unit: 2837

connected to the bottom wall of the module casing (see Fig 8 and page 10, paragraph [0094]), this plate allows connection of the electrical cable to the modules and pivots back and forth when the modules are pulled apart to be placed in the folded position and pushed together to form the elongated keyboard.

32. In terms of claim 15, Asahi teaches all the above claimed elements of claim 1, but neither Asahi, Breitweiser or Bubar teach of the presence of tie rods.

33. As for claim 16, Asahi teaches the modules having front and rear walls (see page 9, paragraph [0078]), but neither Asahi, Breitweiser or Bubar teach of the modules having tie rods or rod engaging holes to receive the opposite ends of the tie rods.

34. Claim 14 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. Because neither Asahi, Breitweiser or Bubar teach the presence of rod engaging holes or tie rods incorporated into the modules.

### ***Conclusion***


35. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The US patent to Parienti (6,259,006).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Russell whose telephone number is 571-272-4350. The examiner can normally be reached on Mon-Fri, 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on 571-272-2107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CR  
11/07/2005



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